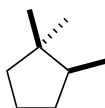
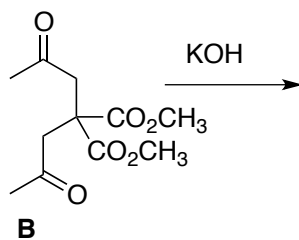


1. (10 points) Using any piece that contributes three or fewer carbons to the final product, outline a synthesis of **A**.



A

2. (10 points) Deduce the structure of **C**, and draw an arrow-pushing mechanism for its formation.



B

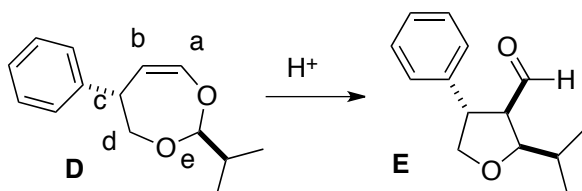
IR: 2957, 1735, 1675, 1436, 1380, 1300, 1249, 1075, 1054 cm^{-1}

$\text{C}_{11}\text{H}_{14}\text{O}_5$

C

^{13}C NMR	^1H NMR
194.5, s	5.88, s, 1H
170.2, s (2)	3.75, s, 6H
158.7, s	2.90, s, 2H
126.2, d	2.87, s, 2H
55.5, q (2)	2.01, s, 3H
53.3, s	
41.7, t	
36.3, t	
24.3, q	

3. (10 points) Draw an arrow-pushing mechanism for the conversion of **D** to **E**.



bb	bf